

REMARKS

Claims 1-43 were pending in the application. Claims 44-46 have been added by this amendment. The status of the claims is as follows:

Claims 6-26 and 30-43 are withdrawn from consideration.

Claims 1-5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,920,409 to Yamagishi ("Yamagishi").

Claims 27-29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi as applied to claims 1-5 above in view of U.S. Patent No. 6,414,669 B1 to Masazumi ("Masazumi").

Claims 44-46 have been added.

The indication, in the Office Action, that the corrected drawings filed on August 16, 2001, is acknowledged. A Request for Approved of Proposed Drawings was filed on August 16, 2001. Approval of these proposed drawing changes is requested in order to file the corrected drawings.

Claim 1 has been amended to more explicitly claim the configuration and function of the liquid crystal layer and the scanning electrodes. These amendments merely make explicit what was implicit in the original claim as would have been understood by one of skill in the art. These changes are not necessitated by the prior art, are unrelated to the patentability of the invention over the prior art, and do not introduce any new matter.

35 U.S.C. § 103(a) Rejections

The rejection of claims 1-5 under 35 U.S.C. § 103(a), as being unpatentable over Yamagishi, is respectfully traversed based on the following.

Claim 1 includes the limitation of “the signal electrodes being aligned in the second direction at a second pitch wider than the first pitch...” That the claimed signal electrodes have a second pitch that is wider than the first pitch of the scanning electrodes is evident in both FIGs. 2 and 13, which illustrate this relationship.

The purpose for having scanning electrodes with a narrower pitch than the signal electrodes is two-fold. As described in paragraph [0010] of the present application, the narrower pitch results in a higher resolution image in the scanning direction and prevents blackouts during writing to the liquid crystal display. Neither of these effects can be achieved by simply narrowing the pitch of the signal electrodes.

The Office Action applies Yamagishi by interchanging Yamagishi’s scanning and signal electrodes. Changing the orientation of the scanning and signal electrodes, *i.e.*, horizontal for vertical and vice versa may or may not be obvious. However, interchanging Yamagishi’s orientation does not lead to the invention of claim 1. The functions of the scanning and signal electrodes remain the same regardless of their orientation. The Office Action merely states that rearranging the scanning and signal electrodes would be obvious to one of ordinary skill in the art as it is a design choice for vertical and horizontal images. The Office Action provides no indication that any image is being interchanged vertical for horizontal. In fact, FIGs. 10 and 12 of the present application show the image is not interchanged vertical for horizontal.

Further, and more importantly, by interchanging the scanning and signal electrodes of Yamagishi’s FIG. 1, the resultant three-color pixel is badly distorted. As seen in FIG. 1 of Yamagishi, the three-color pixel is approximately 1.5 times longer in the Y-direction than in the X-direction. Following the suggestion in the Office Action of interchanging the scanning and signal electrodes results in a three-color pixel that would be six times longer in the X-direction than in the Y-direction. Such a distortion of the image would prove to be unacceptable to the viewer. The resultant blackouts during writing to the liquid crystal display would also be exacerbated. In the approximately square display area

shown in FIG. 1 of Yamagishi, only three fields (C1, C2, and C3) would need to be written to scan the entire area. By interchanging the scanning and signal electrodes, seven fields would need to be written, taking more than twice as long to scan the entire area. These extended blackouts would clearly be unacceptable to the viewer. Thus, for at least these two reasons, Yamagishi teaches away from interchanging the scanning and signal electrodes as suggested by the Office Action. One of ordinary skill in the art would therefore not interchange Yamagishi's scanning and signal electrodes to arrive at the invention of claim 1. As Yamagishi teaches away from at least one limitation of claim 1 for at least two reasons, Yamagishi cannot render obvious the invention of claim 1.

Claims 2-5 depend from claim 1. As claim 1 is considered nonobvious over Yamagishi, claims 2-5 are considered nonobvious for at least the same reasons.

Accordingly, it is respectfully requested that the rejection of claims 1-5 under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi, be reconsidered and withdrawn.

The rejection of claims 27-29 under 35 U.S.C. § 103(a), as being unpatentable over Yamagishi in view of Masazumi, is respectfully traversed based on the following.

As described above, Yamagishi actually teaches away from the present invention as found in claim 1. The combination of Yamagishi and Masazumi similarly fails to render obvious the invention of claim 1. FIG. 4 of Masazumi illustrates a liquid crystal display having scanning and signal electrodes with an equal pitch. As claim 1 requires the signal electrodes have a wider pitch than the scanning electrodes, Masazumi fails to overcome the shortfall noted in Yamagishi. Therefore, the combination of Yamagishi and Masazumi does disclose or suggest each limitation of claim 1 and thus, cannot render claim 1 obvious.

Claims 27-29 depend from claim 1. As claim 1 is considered nonobvious over the combination of Yamagishi and Masazumi, claims 27-29 are considered nonobvious for at least the same reasons.

Claim 1 includes the limitation of “the signal electrodes being aligned in the second direction at a second pitch wider than the first pitch...” That the claimed signal electrodes have a second pitch that is wider than the first pitch of the scanning electrodes is evident in both FIGs. 2 and 13, which illustrate this relationship.

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Further, and more importantly, by interchanging the scanning and signal electrodes of Yamagishi’s FIG. 1, the resultant three-color pixel is badly distorted. As seen in FIG. 1 of Yamagishi, the three-color pixel is approximately 1.5 times longer in the Y-direction than in the X-direction. Following the suggestion in the Office Action of interchanging the scanning and signal electrodes results in a three-color pixel that would be six times longer in the X-direction than in the Y-direction. Such a distortion of the image would prove to be unacceptable to the viewer. The resultant blackouts during writing to the liquid crystal display would also be exacerbated. In the approximately square display area

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As described above, Yamagishi actually teaches away from the present invention as found in claim 1. The combination of Yamagishi and Masazumi similarly fails to render obvious the invention of claim 1. FIG. 4 of Masazumi illustrates a liquid crystal display having scanning and signal electrodes with an equal pitch. As claim 1 requires the signal electrodes have a wider pitch than the scanning electrodes, Masazumi fails to overcome the shortfall noted in Yamagishi. Therefore, the combination of Yamagishi and Masazumi does disclose or suggest each limitation of claim 1 and thus, cannot render claim 1 obvious.

Claims 27-29 depend from claim 1. As claim 1 is considered nonobvious over the combination of Yamagishi and Masazumi, claims 27-29 are considered nonobvious for at least the same reasons.

Accordingly, it is respectfully requested that the rejection of claims 27-29 under 35 U.S.C. § 103(a) as being unpatentable over Yamagishi in view of Masazumi, be reconsidered and withdrawn.

New Claims

New claims 44-46 include additional features disclosed in the present application. Claim 44 requires the pixels to display the same color, *i.e.*, a monochromatic display as disclosed in paragraph [0123]. Claim 45 requires the scanning voltage be higher than the signal voltage as illustrated in FIG. 5, *i.e.*, V1, V2, V3 are all greater than V4. Claim 46 requires the pulse form of the signal voltage be variable according to the data signal, which is disclosed in paragraph [0046]. Thus, the limitations of each of claims 44-46 are disclosed in the specification and do not introduce new matter. As claims 44-46 depend from nonobvious claim 1, claims 44-46 are considered nonobvious, and thus allowable, for at least the same reasons.

CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

This Amendment does not increase the number of independent claims, increases the total number of claims by 3 from 43 to 46, but does not present any multiple dependency claims. Accordingly, a Response Transmittal and Fee Authorization form authorizing the amount of \$54.00 to be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260 is enclosed herewith in duplicate. However, if the Response Transmittal and Fee Authorization form is missing, insufficient, or otherwise inadequate, or if a fee, other than the issue fee, is required during the pendency of this application, please charge such fee to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260.

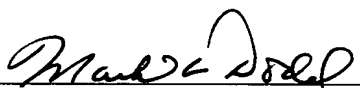
Application No. 09/891,997
Amendment dated July 14, 2004
Reply to Office Action of April 20, 2004

Any fee required by this document other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No 18-1260. Any refund should be credited to the same account.

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

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July 14, 2004

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